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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
Category 1 & 2 - Proposed Resource Actions Recommended for Continuing Analysis					
Aquatic Resources - Provide for Upstream Passage of Anadromous Fish					
EWG-2A (1)	Upstream Fish Passage and Holding and Spawning Habitat	Adult Chinook Salmon Upstream Passage and Spatial Separation of Spring-Run Chinook Salmon and Fall-Run Chinook Salmon	Install a weir at or a size-exclusion device in the low flow section (from July 1st to November 15th) to selectively pass desired fish species into the low flow channel. Currently, fishes in the Feather River are allowed free access into the upper portions of the low flow channel. This Resource Action would address concerns about high salmonid spawning densities in the low flow channel and provide an opportunity to segregate the spring and fall runs of Chinook salmon in the Feather River.	Recreation (Angling, Boating)	This Resource Action will incorporate the previous EWGs 2B, 34, & 41. Could be merged with EWG-1 (different mechanism for achieving a similar resource goal). Suitable locations have been identified in the EWG-2A narrative report draft. [SP-F10 Task 1E will provide information regarding locations where spring-run Chinook salmon currently hold.] This action would require a method for collecting adult fall-run Chinook salmon for the Feather River Fish Hatchery broodstock collection. One location could be installed near Bedrock Park (from July 1st to November 15th) and used for immigration and/or emigration monitoring activities, reducing predation on salmonids, and to provide spatial separation of holding and spawning habitat for spring-run and fall-run Chinook salmon (reduce fish hybridization). The latticed grate would be designed to block movement of adult salmonids but not juveniles. Extent of effect of predation on juvenile salmonids is unquantified (mostly by Sacramento pikeminnow) This measure may impact boating. Initially a Category 2-(FTF Meeting-7/16/2003); Category 1 - EWG Meeting (9/24/2003).
EWG-88 (2)	Fish Spawning Habitat Enhancement	Chinook and Steelhead Spawning Habitat	Increase flows in the low-flow reach of the Feather River reach to increase available spawning habitat. This Resource Action would increase flows above current levels (600 cfs) during peak Chinook and steelhead spawning to increase the quantity of habitat available for salmonids.	Engineering (Operations)	This Resource Action would need to keep flows up during periods of fish spawning so as to not dewater redds. Ongoing field analysis associated with SP-G2 will provide additional data. May be combined with EWG-15. SP-F16 will determine the flow range at which weighted usable area (WUA) is greatest. Category 2 -Determined at Fisheries Task Force Meeting (8/22/2003).
EWG-100 (2)	Emigration Flows	Natural Flow Regime and Survival Rates of Juvenile Salmonids	Introduced in July 2003 by NOAA Fisheries. This Resource Action proposes to simulate aspects of historic flow regimes through periodic increases of flows in the low-flow channel to encourage outmigration of juvenile salmonids. This Resource Action would periodically increase flows above current levels (600 cfs) to serve as migratory cues. The action for this measure could include a literature search. Additional description for this Resource Action was provided in the Resource Action Identification Form submitted by NOAA Fisheries.	Engineering (Operations)	Introduced in July 2003 by NOAA Fisheries. Most spawning of anadromous fish occurs in the LFC. According to NOAA, there is evidence that suggests that juvenile outmigration of salmonids is highly coordinated with increased flows (similar to historic flow regimes). Therefore, by providing periodic increases in flows in the LFC, juvenile salmonid survival rates could increases. UC Davis is currently conducting studies to determine the effects of pulse flows on fish. This Resource Action is similar to other measures designed to increase salmonid development and survival including EWG-4A/B (pulse flows for passage & attraction), EWG-104 (former EWG-19B and EWG-23, mechanical or hydraulic changes to the FR), EWG-36 & EWG-37 (temperature modifications to the FR), and EWG-88 (increasing base flows in the LFC), and could be implemented in conjunction with EWG-16A/B, EWG-83, EWG-87, EWG-98, or EWG-99. Category 2 - Determined at Fisheries Task Force Meeting (12/11/2003).
EWG-5 (1)	Upstream Fish Passage	Upstream Passage for Adult Sturgeon and Shad	Under low flow conditions, Shanghai Bench and Sunset Pumps may be impassable for sturgeon and/or American shad due to high water velocities in some areas and/or a vertical height barrier. Structurally modify the Sunset		Need velocity information under different low flow conditions. Combines related Resource Actions related to Sunset Pumps from February 19 and March 26, 2003 EWG meetings. There could be an increase in poaching by implementing this Resource Action. Category 1 -Determined at Fisheries Task Force Meeting (8/22/2003).
EWG-97A (2)	Upstream Fish Passage	Adult Anadromous Fish Upstream Passage	Introduced in July 2003 by NOAA Fisheries. This Resource Action proposes to evaluate providing upstream passage of anadromous fish (Central Valley spring-run Chinook and steelhead) to the upstream tributaries of Lake Oroville. Proposed methodologies include: 'trap and haul' program. Downstream migrants could be captured in the tributaries using positive barrier screens during low flows, and surface collection devices ("gulpers") or air-acoustic and guidance devices (Bio-Acoustic Fish Fence) during high flows. According to NOAA's RAIF, increasing the quantity of habitat for spring-run Chinook and steelhead would greatly improve production of these fish. Studies or actions proposed by NOAA include: feasibility testing (no time frame given); install and evaluate 'upstream collection system' (by March 2004); and upstream habitat estimate (June 2004). Additional description for this Resource Action was provided in the NOAA submitted Resource Action Identification Form (RAIF).	Recreation (Angling, Boating)	This Resource Action incorporates NOAA Fisheries sponsored re-introduction of anadromous fish (e.g. Central Valley spring-run Chinook and steelhead; state and federally listed species) to the upstream tributaries of Lake Oroville through a 'trap and haul' program. NOAA Fisheries is preparing a information package for this proposal, with further information regarding specific capture/collection devices, locations for releasing the anadromous fish, and means to measure success for this measure. SP-F15 will provide an analysis of the feasibility of providing passage for anadromous fish upstream of Lake Oroville using a variety of fish passage mechanisms/programs. NOAA has indicated that there are no known Resource Actions which might possibly provide similar benefits to the two listed species. [Concerns with fish disease, predation, and potential competition for food and habitat with resident fish.] Category 3 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-97B (2)	Upstream Fish Passage	Adult Anadromous Fish Upstream Passage	Provide upstream passage of adult anadromous fish through 'trap and transport' program. [Passage would be to upstream tributaries of Lake Oroville to the first fish barrier (e.g. Big Bend Dam.]	Recreation (Angling, Boating)	SP-F15 will provide an analysis of the feasibility of providing passage for anadromous fish upstream of Lake Oroville to the first fish barrier using a wide variety of fish passage mechanisms/programs. There is also a concern related to potential fish disease, predation, genetic introgression, and potential competition for food and habitat with resident fish. Category 2 -Determined at Fisheries Task Force Meeting (8/22/2003).
Aquatic Resources - Improve Habitat for Anadromous and Resident Fish					

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
EWG-13A (1)	Fish Rearing Habitat Enhancement	Woody Debris Recruitment for Juvenile Fish Rearing Habitat	Add woody debris in the Feather River. Large woody debris (LWD)would be anchored or inserted into the river at target locations to provide increased habitat complexity. Source areas for woody debris are upstream of Lake Oroville.	Recreation (Boating)	This Resource Action will incorporate EWG-20, and look at a LWD program for the lower Feather River (LFC & HFC). This Resource Action would likely also be combined with EWG-16A/B. Additional information on the viability and sustainability of LWD placement in the Feather River flow regime and identification of candidate sites is required. Analysis of geomorphic effect of woody debris placement would be needed. Category 1 -Determined at Fisheries Task Force Meeting (8/22/2003).
EWG-13B (1)	Fish Rearing Habitat Enhancement	Habitat Complexity for Rearing Juvenile Steelhead and Chinook Salmon	Provide additional salmonid rearing habitat within the existing main channel of the LFC by creating additional cover, edge, and flow complexity. This could be accomplished through the addition of LWD, boulders, and other objects, and by the creation of mid-channel gravel islands. The goal of these main channel	Recreation (Boating)	Related to EWG-13A. Additional habitat complexity may result for creation of additional side-channel habitat as identified in EWG-16. Cover enhancement in pools should generally be avoided because these are more likely to benefit predatory fishes than rearing salmonids. Fluvial 12 Model could be used to assess channel and habitat improvement stability. Category 1 -Determined at Fisheries Task Force Meeting (8/22/2003).
EWG-15A (2)	Fish Spawning Habitat Enhancement	Spawning Habitat for Chinook Salmon	Incrementally increase flows in the low flow channel from relatively low flows (for example, 400-600 cfs or 600-800 cfs) to relatively high flows (for example, 800-1000 cfs or 1000-1200 cfs) throughout the Chinook salmon spawning season (for example, Sept 1 - Dec 1 or Sept 1 - Dec 15) in order change the lateral spawning habitat distribution from center of river channel during the early portion of the	Engineering (Operations)	This Resource Action was formerly EWG-15. Needs additional information regarding the target flow range in which this action would occur and the duration of the flow increases. Also see IFIM study. SP-F16 may be able to provide an assessment of the benefit associated with this Resource Action by evaluating lateral redd distribution in response to flow changes. The Resource Action would likely be combined with Resource Action as EWG-3 or EWG-88. Category 2 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-15B (2)	Fish Spawning Habitat Enhancement	Spawning Habitat for Spring-Run Chinook Salmon	Provide relatively low flows (for example, 400-800 cfs) in the low flow channel from the beginning of Chinook salmon spawning season (for example, Sept 1 - October 7 or September 1 - October 15) until spring-run Chinook salmon are believed to have spawned and then change flows to a relatively high flow (for example, 800-1200 cfs from October 8 - Dec 1 or October 16 - Dec 15) in order change the lateral spawning habitat distribution from center of river channel during the early portion of the spawning season to margins of river channel in the later portion of the spawning season. Flows would be increased once during the season in order to increase usable spawning habitat and reduce superimposition of spring-run Chinook salmon redds. Once flows reach the high flow target, the high flow target would be maintained through May 30 in order to avoid dewatering steelhead redds through the incubation period.	Engineering (Operations)	See above for further detail. Category 2 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-16A (1)	Fish Rearing Habitat Enhancement	Rearing Habitat for Juvenile Salmonid Fish Species	Create side-channel habitat adjacent to the low-flow reach in the Feather River. DWR studies have found that juvenile steelhead trout strongly select shallow riffle/glide and near-shore habitats with abundant riparian and in-stream cover. Habitats meeting these criteria are most often found in side-channels. Currently preferred habitats of juvenile steelhead are not common in the LFC. To expand availability of preferred rearing habitat, side channels should be constructed at various suitable areas within the LFC. Potential sites for side channel creation in the LFC include (from upstream to downstream): Aleck Riffle, Great Western Riffle, Robinson Riffle/Borrow Pond, Steep Riffle, between Eye and Gateway Riffles, and the Oroville Wildlife Area southeast of the Thermalito Outlet.		The increased habitat complexity will benefit protected, sensitive, or other desired juvenile fish species. Side channel creation will be most effective if conducted in combination with base flow increase, planting of riparian vegetation, and re-establishment of flow through historic river channels. Needs further analysis on how side-channel habitat will be created. Ongoing studies associated with SP-G2 will provide data. Fluvial 12 model would be used to select sites and assess stability. Could be combined with EWG-21. Detailed site evaluations will be necessary to determine which site are most amenable to side channel creation or enhancement (DWR staff will provide information on specific sties). This Resource Action would likely be done in coordination with a riparian enhancement project (EWG-17 & EWG-51). We may have to mitigate for potential beaver activity in the side-channel areas. Category 1 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-16B (1)	Fish Rearing Habitat Enhancement	Rearing Habitat for Juvenile Salmonid Fish Species	Restore and/or improve side-channel habitat adjacent to the low-flow reach in the Feather River. The two existing side channels at the upstream end of the LFC, Hatchery Ditch and Moe's Ditch, would benefit from habitat and flow enhancements. Hatchery Ditch, a primary steelhead spawning and rearing reach is currently fed solely by seepage from the Feathery River Hatchery (FRH)		The increased habitat complexity will benefit protected, sensitive, or other desired juvenile fish species. Detailed site evaluations will be necessary to determine which sites are most amenable to side channel creation or enhancement. Needs further analysis on how side-channel habitat will be restored. Ongoing studies associated with SP-G2 will provide data. Fluvial 12 model would be used to select sites and assess stability. Could be combined with EWG-21. DWR staff will provide information on specific sties. Category 1 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-92 (2)	Fish Spawning Habitat Enhancement	Spawning Gravel Quantity Enhancement for Adult Salmonids	Gravel replacement on the lower reach spawning riffles if these areas are found to be of poor spawning quality (ongoing, SP-G2).		The Resource Action was moved to the Fisheries section from the Fluvial Processes section, and incorporates the former EWG-91. This measure could also be combined with EWG-16A/B. Ongoing field analysis associated with SP-G2 will provide additional data. This Resource Action would likely would require continued gravel supplementation over time. Gravel could be obtained from OWA. Category 2 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-18 (2)	Fish Spawning Habitat Enhancement	Spawning Habitat for Chinook Salmon and Steelhead	In areas where armoring has occurred, selected sections of the low-flow reach of the Feather River would be ripped with the goal of improving spawning gravel quality for Chinook salmon and steelhead. This Resource Action is not specific to location at this time; results from ongoing geomorphology studies (SP-G2) will be used to better define ripping and target locations in the low-flow reach.		This Resource Action incorporates EWG-90. Areas suitable for ripping are uncertain at this time; further information will be obtained after results from SP-F10 Task 2A have been issued. Ripping may result in turbid water and therefore, may impact water quality. Use Fluvial 12 Model to assess effect on future grain size distribution. Closely related to EWG-90. Category 2 -Determined at Fisheries Task Force Meeting (7/16/2003).

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
EWG-19A (2)	Spawning Habitat and Rearing Habitat Enhancement	Splittail Spawning Habitat and Juvenile Chinook Salmon Rearing Habitat	Modify existing or build vegetated "benches" at various stage elevations in the lower Feather River (i.e. near Verona) to enhance splittail spawning habitat and Chinook salmon rearing habitat.		This Resource Action was formerly EWG-19. Similar to EWG-104. Benches that provide inundated vegetation would provide suitable habitat for splittail spawning and provide valuable rearing habitat for Chinook salmon. Need additional information from SP-F3.2 Task 3B including the location and stage that would be required to inundate the constructed benches. Benches should be constructed so that they do not become potential stranding locations for juvenile salmonids. Category 2 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-104 (2)	Fish Spawning and Rearing Habitat Enhancement	Spawning and Rearing Habitat for Splittail, Chinook Salmon, and Steelhead	This Resource Action proposes mechanical or hydraulic changes to increase the connectivity between lower Feather River channel and its floodplain habitats (including low-elevation terraces) to increase/enhance the spawning and rearing habitat for splittail and salmonids. This could be accomplished by setting back levees to create/enhance habitats for Chinook salmon, splittail, and steelhead, or by providing increased flows (higher and longer duration) in the winter and spring. One potential source for the increased flows could be the Thermalito Afterbay Outlet.		Lands utilized for this measure could be on existing State owned lands or, if feasible, on newly purchased areas. This Resource Action replaces EWG-21, 22, 23, 24, and 25. Need specifics on which levees would be breached. Unclear how much increased flow is needed to inundate areas. Increasing flows may or may not provide additional shallow water habitat depending upon the shape of the channel. Increased flows may result in loss of suitable habitat with respect to increased depth and/or velocities. SP-F16 to provide information on the relationship between flow and Chinook and steelhead juvenile rearing habitat. Similar to EWG-93A/B. Category 2 -Determined at Fisheries Task Force Meeting (9/3/2003).
EWG-26 (2)	Fish Habitat Enhancement	Habitat Complexity for Warmwater Species	Provide habitat enhancement in areas without weeds, primarily through added structure, for warmwater or other target species (i.e. black bass).	Recreation	Need specifics on habitat enhancement (may be similar to EWG-31). Category 2 -Determined at Fisheries Task Force Meeting (8/20/2003).
EWG-27 (2)	Fish Predation and Sediment Transport	Prevent Juvenile and Adult Salmonid Stranding and Improve Rearing Habitat	Fill, isolate, or reclaim Robbinson Riffle Borrow Pond. The objective in isolating the Robinson Riffle pond at RM 61-62 from the Feather River channel is to eliminate its influence on the river and flood plain geomorphology. An additional goal for this measure would be to prevent juvenile and adult salmonid stranding and improve rearing habitat.		The results of SP-G2, Task 7 modeling have reintroduced this measure into the RAM table/EWG. Potential contaminant concerns (i.e. mercury). Additional detail to follow. Use Fluvial 12 to assess future effects on channel stability. Initially - Category 4 -Fisheries Task Force (8/22/2003). Based on results of SP-G2 and Feb EWG Meeting, Category 2.
EWG-29 (2)	Fish Habitat Enhancement	Aquatic Weed Control	Control aquatic weeds (primarily primrose) to enhance fish habitat in the OWA ponds. Aquatic weed control could be accomplished using various methods, including but not limited to mechanical control, chemicals, or altering the flows. Ponded waters from beaver dams has killed Cottonwood trees.		May be combined with EWG-75. This Resource Action is primarily for Rec. purposes. Additional impacts would be to Terrestrial (aquatic primrose and TES species issues; i.e. giant garder snake or red-legged frog). This Resource Action is to be sent to the Recreation RAM (& others) for review and comment. Beaver Dam related. Initially a Category 3 -Fisheries Task Force Meeting (8/20/2003). Category 2 -Determined at Fisheries Task Force Meeting (12/11/2003).
EWG-103 (1)	Fish Rearing Habitat Enhancement	Nursery Habitat Enhancement	Use brood ponds as nursery habitat for warmwater species (i.e. black bass) in the Thermalito Afterbay.		After rearing in brood ponds, fish could be seined out and placed in the Thermalito (Complex or Afterbay). This may be a Recreation issue. Potential concerns could be predation on ducklings and amphibious species. This Resource Action was formerly mislabeled as EWG-98 (there already was an EWG-98). Category 1 -Determined at Fisheries Task Force Meeting (9/3/2003).
EWG-31 (1)	Fish Habitat Enhancement	Bass Habitat Enhancement	Continue/Maintain habitat enhancement program for fish rearing/refuge in Lake Oroville through the placement of woody debris, Christmas tree reefs, or other, yet to be determined, methods. This Resource Action could include enhancement of spawning and nesting shelters for resident fish (bass and catfish) in the shallow areas of Lake Oroville. Habitat enhancement may incorporate the addition of riprap, concrete, or weighted pipes, or by adding artificial reefs in the shallow areas of Lake Oroville. This Resource Action is related to drawdown because selecting areas for habitat improvement will need to take into account seasonal fluctuations of the reservoir.	Recreation, Cultural	Similar program has been conducted in recent years. Need info on depths of implementation and habitat needs. Also need to address the concerns related to tire usage for bass habitat [Hazards could include: mosquitoes, visuals, boater/jet ski hazard, etc.] Eric See and Woody Elliot are very interested in this. Long term monitoring and maintenance issues. There is also the issue with long-term management plan - need permission for large tire implementation measures (401, F&G, etc.). Initially a Category 2 - Fisheries Task Force Meeting (8/20/2003). Category 1 - Determined at Fisheries Task Force Meeting (12/11/2003).
EWG-98 (1)	Fish Habitat Enhancement	Spawning and Rearing Habitat for Chinook Salmon and Steelhead	Create or enhance spawning and rearing habitat in the tributaries of the lower Feather River. The Resource Action proposes engineer new habitat or enhance underutilized habitats in the lower Feather River with year-round water supplies (derived from the project water - Feather River, Oroville Dam releases, etc.). Water supplies could be delivered to these habitats through conduits constructed from the project waters, to supply the habitats with year-round cold water for the benefit of anadromous fishes. The goal of the Resource Action is to create 3rd order stream habitats, similar to that in higher elevations (upstream of Oroville Dam).		This Resource Action was introduced in July 2003 by NOAA Fisheries. The new spawning and rearing habitats would likely be engineered (backhoe, etc.), and would be done in conjunction with a riparian enhancement and stream restoration/rehabilitation efforts (i.e. plantings, LWD placement, boulder placement). This Resource Action would be implemented to provide additional habitat (3rd order streams) for Chinook and steelhead that is otherwise not available due to Oroville Dam. Specific areas to be created need to be identified, lands may need to be purchased, and feasibility issues regarding water conduits and contracts need to be addressed. Similar to Resource Actions EWG-16A/B, 36, 37, 88, and 99. Category 1 -Determined at EWG Meeting (12/17/2003).

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EWG-99 (1)	Fish Habitat Enhancement	Spawning and Rearing Habitat for Chinook Salmon and Steelhead	Create or enhance side channel habitats, within existing levees, to enhance spawning and rearing habitat for spring Chinook and steelhead. The proposed channel locations for enhancement could include any project waters from the low flow or high flow channel, down to lower Honcut Creek). Water supplies could be delivered to these habitats through conduits constructed from the project waters.		This Resource Action was introduced in July 2003 by NOAA Fisheries. The side channel habitats would be engineered, likely by modifying existing side channels (backhoe, etc.). Flows would be diverted from the main Feather River to side channels. Proposed flows could range from 10-30 cfs to approximately 100 cfs. The various channel locations would need to be investigated within the proposed area (LFC/HFC to Honcut Creek). Preliminary designs could include a header box and stop log structure at the upstream end of each created channel to allow for flow manipulation (without restricting upstream passage of anadromous fish). Ratings curves would need to be generated for the created side channels to prevent strandings. Similar to Resource Actions EWG-16A/B, 36, 37, 88, & 98; and could be combined with EWG-13A/B. Category 1 -Determined at Fisheries Task Force Meeting (8/22/2003).
Aquatic Resources - Reduce Predation on Salmonids and other Native Aquatic Species					
EWG-42 (2)	Fish Predation	Feather River Fish Hatchery Practices	Release hatchery steelhead at a smaller size or alter release timing (release them earlier) to reduce their impacts on salmonid survival (as predators).		Requires coordination with Cal F&G. This Resource Action was moved from previous location because it deals specifically with predation. Category 2 -Determined at Fisheries Task Force Meeting (8/20/2003).
Aquatic Resources - Provide Desirable Water Temperatures for Cold Water Fish Species					
EWG-36 (2)	Water Temperature	Immigration, Spawning, and/or Rearing Habitat Enhancement for Chinook Salmon and Steelhead	Operate the Oroville Facilities in a manner which would provide additional cold water in the low flow channel of the Feather River for benefit of Chinook salmon and steelhead. This Resource Action would likely be implemented during the early fall (September & October), during the early spawning period for fall-run Chinook salmon (spawning and incubation period).	Engineering (Operations), Recreation (Angling, Swimming)	Uncertain how much cooler water would be needed from Lake Oroville to affect water temperatures in the Feather River. Will get info from modeling efforts. This Resource Action could also help with spatial separation of spring-run and fall-run Chinook salmon. Category 2 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-102 (1)	Water Temperature	Maintain the Genetic Integrity of Anadromous Fish	The measure proposes to manage the LFC or lower Feather River to provide water temperatures in the river that mimic historic (pre Oroville Dam) to help maintain the genetic integrity of the spring-run Chinook salmon (i.e., manage water temps to mimic upper watershed elevation water temperature). This measure could benefit other fish species in the Feather River system (i.e, steelhead, sturgeon, and splittail). Construction of a device which would direct water from the Thermalito Powerplant to the Thermalito Outlet has been proposed, and thereby potentially increasing outputs from the Thermalito Dam. Comparisons of water temps to Deer Creek and Mill Creek have indicated that the Feather River generally has lower summer water and higher winter water temperatures. Proposed actions also include: literature search for historic temperatures, constructing an 'unimpaired' temperature profile, and determining alternative water sources.	Engineering (Operations), Recreation (Angling, Swimming)	Introduced in July 2003 by NOAA Fisheries. Need to determine: elevation of watershed we wish to mimic, the quantity and temp. of water need to achieve warm and cold water goals for the lower Feather River. Studies have indicated that juvenile salmonids are reportedly unable to effectively utilize habitat below the Thermalito Outlet, and returning the lower Feather River water temperatures to historic conditions would greatly benefit salmonids. Need to evaluate water temp. data from Deer and Mill Creek. DWR should have pre-dam water temperature data for review (from USGS). There are also concerns regarding the genetic change of salmonid species from 'stream-type' life history to 'ocean-type' life history. Additional info will be received from modeling efforts. Related to EWG-35, EWG-36, EWG-37, EWG-83. [Category 1 -FTF Meeting (12/11/2003).]
EWG-37 (2)	Water Temperature	Immigration, Spawning, and/or Rearing Habitat Enhancement for Chinook Salmon and Steelhead	Operate the Oroville Facilities in a manner which would provide additional cold water in the high flow channel of the Feather River for benefit of Chinook salmon and steelhead.	Engineering (Operations), Recreation (Angling, Swimming)	Uncertain how much cooler water would be needed from Thermalito Complex that could affect water temperatures in the Feather River. Will get info from modeling efforts. Related to EWG-35 and EWG-83, and could be combined with EWG-83. Category 2 -Determined at Fisheries Task Force Meeting (12/11/2003).

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
Aquatic Resources - Minimize Hatchery Impacts on Anadromous Salmonids and Resident Fish					
EWG-45 (2)	Recreational Fishery Enhancement	Recreational Fishery	Create trophy salmonid stocking program in Afterbay similar to trophy program in Lake Oroville. This would use a Feather River strain of steelhead (to reduce disease concerns)	Recreation	Requires coordination with DFG. Cold water needs in Afterbay for stocked fish could impact rice farmer needs. Also could implement program in Thermalito Diversion Pool. Possible conflict due to interactions between salmonids in river (see EWG-44). This Resource Action may not be compatible with EWG-40, EWG-87, or with Ag folks. This measure is more of a Recreational Resource Action; and could be designed similar to EWG-45 or EWG-48 (low costs). [Category 2 - Determined at FTF Meeting (8/20/2003).]
EWG-47 (2)	Recreational Fishery Enhancement	Increase Fish Production	Create trout stocking program in suitable OWA ponds (without weed issues). Program would operate seasonally and all stocked fish would be screened for disease.	Recreation	This measure would be designed similar to EWG-45 or EWG-48 (low costs). Stocked fish have potential to interact with the fish in the Feather River. Disease screening won't do any good if the fish don't contract the disease until they are planted. This Resource Action may not be compatible with EWG-40, and could have impacts to TES species. Again, this measure is more of a Recreational Resource Action. [Category 2 - FTF Meeting (8/20/2003).]
EWG-48 (2)	Recreational Fishery Enhancement	Increase Production for Recreational Fishery	Stock warmwater species (e.g., Florida strain bass) in selected OWA ponds to create trophy angling areas. This measure could be designed as a mitigation for the operations management of the Afterbay.	Recreation	A potential concern would be that stocked fish have potential to interact with the fish in the Feather River, and could have impacts to TES species. This measure would be designed similar to EWG-45 or EWG-47 (low costs). This Resource Action may be subdivided into an 'A' (OWA) and 'B' (Afterbay - to mitigate for Afterbay Fluctuations). [Category 2 - Determined at FTF Meeting (8/20/2003).]
EWG-50 (2)	Recreational Fishery Enhancement	Increase Fish Production	Continue or Maintain the cold water fishery in Lake Oroville. This could include evaluating additional options for alternative stocking procedures in the reservoir.	Recreation	DWR-DFG is currently under a FERC order to stock fish in Lake Oroville. It would be designed to continue or further develop the existing coldwater fishery in Lake Oroville. There are potential fish disease concerns with stocking coho (BKD). This Resource Action may not be compatible with EWG-40. Because of the existing managed fishery in Lake Oroville, this Resource Action would be a Category 2 (8/20/2003), pending further development for the new license.
Terrestrial Resources - Enhance and Protect Terrestrial and Riparian Habitat for Native Plant and Animal Species					
EWG-56 (1)	Waterfowl Habitat Enhancement	Increase Habitat for Nesting Waterfowl	Construct and maintain additional brood ponds to accommodate brooding waterfowl in the Thermalito Afterbay.		If engineered properly, there would be relatively low O&M costs. Must consider land availability. This measures was proposed to mitigate for Afterbay fluctuations. Category 1 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-57A (1)	Waterfowl Habitat Enhancement	Increase Upland Nesting Waterfowl Cover	Enhance upland nesting cover in the vicinity of the Thermalito Afterbay for the benefit of nesting waterfowl. Resource Actions could include the use of various species [e.g. CDFG seedmix, (wheatgrass/ vetch/barley, etc.)]		This Resource Action could be modified to say 'ground nesting and dwelling wildlife', and not just 'nesting wildlife'. Various species could include CDFG seedmix (wheatgrass/ vetch/barley, etc.). [Initial estimate: $150 to plow, seed, and fertilize. (cost revised 7/18/2003)]. Upland food enhancement can provide higher nesting densities (3-10 nests/acre). Category 1 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-57B (1)	Waterfowl Habitat Enhancement	Increase Wintering Waterfowl and Upland Wildlife Food Sources	Enhance upland food (approximately 60 acres) in the vicinity of the Thermalito Afterbay for the benefit of wintering waterfowl and upland gamebirds Resource Actions could include the use of various species [e.g. CDFG seedmix, (milo,		Initial estimate: $9,600 per year to plow, seed, and fertilize 60 acres. (cost revised 1/26/2004)]. This is Central-Valley Joint Habitat Venture commitment by DWR-DFG (Continuing an existing program). This Resource Action was formerly EWG-69. Category 1 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-58 (1)	Waterfowl Habitat Enhancement	Increase Habitat for Nesting Waterfowl	Install wood duck nest boxes in the OWA.		Nest boxes installed in D-area of OWA to develop duck nesting habitat. Would be done in conjunction with CWA & DFG. DWR would purchase material, and CWA & DFG would install & maintain boxes. Cost per box ($70-$100/box). Category 1 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-59 (2)	Terrestrial Species Protection	Minimize Terrestrial Impacts from Recreational Use	Modify recreational use patterns in Feather River, OWA, and Thermalito reach to minimize impacts to sensitive species.	Recreation (Angling, Hunting)	This may be merged with EWG-65. ESA species are being dealt with under current license (w/ consultation) [VELB, GGS, RLF, vernal pool invertebrates]. This Resource Action incorporates EWG-52 & EWG-54. Category 2 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-61 (2)	Riparian Habitat Enhancement	Increase Riparian Recruitment	Develop a hydrologic flow regime (management protocols) to support natural regeneration of riparian recruitment along the Feather River.	Engineering (Operations)	This could include establishing a flow regime which would inundate the floodplain, and gradually reduce the water levels in order to allow for the establishment of root systems as well as discourage the establishment of noxious plants. The frequency of the flooding could be on the order of once every 5 to 10 years. Similar to EWG-100. Could be combined with EWG-66. E&O modeling is related. Fluvial 12 to be used to establish flow regime required to do Geomorphic work of bank erosion and point bar development. Category 2 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-62 (2)	Upland Habitat Enhancement	Restore Native Plant Communities	Implement vegetation or restoration activities to enhance or restore native plant communities in the Lake Oroville upland areas.	Recreation	Potential sites not defined at this time. SP-T10 will identify areas for vegetation restoration. Potential liability issues. State Parks would have an interest here (enhancing natural processes). Remove and revegetate abandoned recreation trails. State Parks is interested a biomass reduction program to reduce potential wildland fires. This may influence the restoration activities. This Resource Action is similar to EWG-74B. Category 2 -Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-65 (1)	Terrestrial Species Protection	Reduce Recreational Impacts on Terrestrial species	Implement measures to reduce recreational disturbances (i.e. trespass & grading) on wildlife populations as needed based on the results of study plan SP-T9.	Recreation	This may be merged with EWG-59. This Resource Action is to incorporate EWG-81. Potential trespass Issues? (Rec. issue) SP-G1 may also provide erosion data. Could include closing trails to protect nesting bald eagles. Category 1 -Determined at Terrestrial Task Force Meeting (8/7/2003).

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
EWG-66 (2)	Riparian Habitat Enhancement	Increase Riparian Recruitment	Develop a hydrologic flow regime to support natural regeneration of riparian vegetation along the Feather River.	Engineering (Operations)	Could involve riparian restoration, removing beaver dams (within the OWA) or developing protocols to address enhancement for cottonwood trees and discourage encroachment by noxious weeds. Not further defined at this time. E&O modeling is related. [Flow related For the modeling efforts]. Need to identify areas for active restoration or re-plantings. Similar to EWG-100. Could be combined with EWG-61. Fluvial 12 to be used to establish flow regime required to do Geomorphic work of bank erosion and point bar development. Category 2 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-67 (2)	Riparian Habitat Enhancement	Increase Wetland Development	Initiate active vegetation plantings in Thermalito Afterbay area.		This resource action would also be useful for the OWA. This action would also be triggered to compensate for non-native species removal (revegetate areas that have been remove). Category 2 -Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-68A (1)	Waterfowl Habitat Enhancement	Maintain or Enhance Brood Ponds	Recharge brood ponds at 3-week intervals for the brooding periods (March 15 to May 15; with the possibility to extend this until June 1).	Engineering (Operations), Recreation	This Resource Action was formerly EWG-68. Limits operational flexibility at Thermalito Complex. This action would be especially useful in dry years. Category 1 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-68B (2)	Riparian Habitat Enhancement	Enhance Bass Shoreline Habitat	Build or enhance riparian habitat in the fluctuation zone of Lake Oroville Reservoir.	Recreation	Related to EWG-31. Could provide recreational fishing benefits. This Resource Action was formerly EWG-64A, and could be combined with EWG-62 or EWG-74B. Category 2 -Determined at Terrestrial Task Force Meeting (8/7/2003).
Terrestrial Resources - Control the Dispersal of Non-Native/Undesirable Plant Species					
EWG-70 (2)	Non-Native Plant Control	Eliminate Noxious Plants	Eliminate noxious plants via biological control, herbicidal treatment or mechanical control and replant with native species.		May require continued maintenance due to periodic high-flow events or evaluation of appropriate technique. May incorporate EWG-51, and could be combined with EWG-74A. Category 2 -Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-73 (1)	Non-Native Plant Control	Eliminate Noxious Plants	Control non-native and undesirable plant species (e.g., purple loose-strife) in the Thermalito Complex.		Information is needed on the life history traits & distribution of non-native and undesirable plant species. Category 1 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-74A (2)	Non-Native Plant Control	Eliminate Noxious Plants	Eliminate noxious plants via biological control, herbicidal treatment or mechanical control and replant with native species.		This would likely be done in coordination with a restoration and monitoring program, and may require continued maintenance due to periodic high-flow events and/or evaluation of appropriate technique. This Resource Action was formerly EWG-74. Could be combined with EWG-70. Category 2 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-74B (2)	Non-Native Plant Control	Eliminate Noxious Plants	Eliminate noxious plants via biological control, herbicidal treatment or mechanical control and replant with native species.		May require continued maintenance due to periodic high-flow events or evaluation of appropriate technique. [Formerly EWG-74A.] Could be combined with EWG-69. Category 2 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-75 (1)	Invasive-Native Plant Control	Eliminate Noxious Plants	Develop management protocols to control primrose. (In OWA ponds)		This Resource Action would address dispersal of primrose. Could be combined with EWG-78 & EWG-80. Category 1 -Determined at Terrestrial Task Force Meeting (7/15/2003).
Terrestrial Resources - Protect and Enhance Populations of TES Plant and Animal Species					
EWG-78B (2)	Protection of Riparian Habitat	Habitat Protection for Special Status Species	Develop operational management actions to avoid impact to special status species within the project area. Specific measures associated with this	Recreation	Removed comment regarding 'developing maintenance and recreational' protocols, and replace them with 'operational' protocols. [Bank Swallow issue.] Category 2 - Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-79 (2)	Riparian Habitat Enhancement	Habitat Enhancement for Threatened & Endangered Species	Enhance riparian habitat for threatened and endangered species in the OWA. One component of the measure will be a VELB Management Plan; other plant species may be included in this.	Recreation	Related to EWG-74A. Some areas could require continued maintenance due to periodic high-flow events. At this time, this Resource Action is not specific to locations within the OWA. Category 2 - Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-82 (2)	Habitat Enhancement	Habitat Protection for Sensitive Plant Species	Develop protection and avoidance actions for sensitive plant populations in the Lake Oroville Area.	Recreation	Not further defined at this time. Could be combined with similar EWG-59 or EWG-82. Category 2 -Determined at Terrestrial Task Force Meeting (8/7/2003).
Water Quality -- Maintain and Protect Water Quality for All Beneficial Uses					
EWG-84A (2)	Water Quality	Improve Water Quality	The settling ponds associated with the Feather River Fish Hatchery are designed to hold effluent until evaporation occurs, but there is high connectivity between the ponds and the Feather River. Leaching occurs from the settling ponds to the Feather River. The ponds' gravel bottom provides some unknown level of		May reduce flow in 'Hatchery Ditch', which is heavily used Chinook salmon and steelhead spawning area. Could be combined with EWG-84A. According to Eric See (DWR), DWR is planning to replace the piping used as a hatchery water source. This Resource Action is scheduled to be implemented before the new license. Category 2 -Determined at Water Quality Task Force Meeting (10/15/2003).
EWG-84B (2)	Water Quality	Improve Water Quality	Line existing holding pond with impermeable barrier to prevent leaching.		May reduce flow in 'Hatchery Ditch', which is heavily used Chinook salmon and steelhead spawning area. This Resource Action was formerly EWG-85. Category 2 -Determined at Water Quality Task Force Meeting (10/15/2003).
EWG-86A (2)	Water Quality	Improve Water Quality	Develop a program to educate the public on the need and ways to maintain water quality in project waters. This could involve an educational signage	Recreation	This would include a program educating the public on source, usage, and impacts to the project waters. This measure could be related to Land Use Work Group Resource Actions. Category 2 - Determined at Fisheries Task Force Meeting (12/11/2003).

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
EWG-86B (2)	Water Quality	Improve Water Awareness	Develop a program to provide information to the public community concerning health related issues relating to project waters. This program could include a water quality signage program such as "Don't Eat The Fish" or "No Swimming".	Recreation	This would be designed to inform the public of potential water quality concerns related to the project waters (elevated bacteria, contaminants, etc.). This measure could be related to Land Use Work Group Resource Actions. Category 2 - Determined at Fisheries Task Force Meeting (12/11/2003).
EWG-87 (2)	Water Temperature	Improve Water Temperature for Salmonids	Operate or modify the Oroville Complex in a manner to provide suitable warm water for agricultural and recreational purposes, while providing adequate cold water releases at the Thermalito Afterbay Outlet.	Eng (Operations), Rec (Angling, Swimming), Ag (Rice Farmers)	This Resource Action may not be compatible with EWG-35, 38, or 83 (temperature for salmonids). Need to look to see if the Resource Action captures the concept brought into the E&O work group by Roger Masuda (Butte County) and Ken Kules (MWD). Category 2 - Determined at Fisheries Task Force Meeting (9/19/2003).
Fluvial Processes - Maintain and Enhance Aquatic Habitat					
EWG-89 (2)	Fish Spawning Habitat Enhancement	Spawning Gravel Habitat	Create levee setbacks to increase meandering nature of river and improve gravel composition in critical spawning reaches of the low-flow reach. This could be introduced into the south area (of the low flow section).		Ongoing field analysis associated with SP-G2 will provide additional data. Use Fluvial 12 Model to assess future channel migration. Levees need to be identified. Could be done in conjunction with EWG 16A & 16B and/or this Resource Action could be combined with EWG-22. Category 2 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-93A (2)	Fish Habitat Enhancement	Hydraulic Characteristics of Channel Configuration	Mechanical or hydraulic changes to areas in the low flow reach have been suggested to improve fish habitat. This Resource Action could include several options, such as leveling off selected gravel bars so they are inundated at particular flows and dig side-channels that provide suitable velocity and cover for juvenile fishes.		Resource Action, EWG-14, would likely be captured in this concept. Fluvial 12 model could be used to assess the long term viability of channel changes. For Collaborative discussion: the relative merits of the two philosophies for river rehabilitation. One is to provide the river with suitable raw materials such as woody debris, sediment including spawning gravel, and suitable flows to allow for geomorphic processes to occur, and then allow the river to establish a new dynamic equilibrium that would be closer to a 'natural' system. (i.e. the Trinity River, in Colorado, and to the upper lower Sacramento.) The other philosophy is to extensively and intensively create new channels, construct spawning riffles, holding pools, habitat enhancements, and revegetate riparian areas to approximate a 'natural' system. This philosophy is being used on Lower Clear Creek. There is a need for the collaborative to discuss, and agree upon, a strategy and a philosophy (or a combination of both) that the Oroville relicensing efforts will pursuing. Category 2 -Determined at Geomorph Task Force Meeting (10/15/2003).
EWG-93B (2)	Fish Habitat Enhancement	Hydraulic Characteristics of Channel Configuration	Regrade the high flow channel, using similar methods as above (EWG-93A). This could include reconfiguring selected sections of the stream channel to establish additional inundated benches to provide suitable splittail spawning habitat.		See comments for EWG-93A. This Resource Action was separated into two Resource Actions because they seemed to be had components that did not work for the initial river sections described. These two Resource Actions (EWG-93A/B) have several parts which are being addressed by other Resource Actions; including EWG-16A/B (side-channel enhancement), EWG-19A (Splittail spawning enhancement), and EWG-104 (former EWG-22, salmonid rearing habitat enhancement). Category 2 -Determined at Geomorph Task Force Meeting (10/15/2003).

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
Category 3 - Proposed Resource Actions Requiring Further Data Collection					
Aquatic Resources - Provide for Upstream Passage of Anadromous Fish					
EWG-1 (3)	Fish Holding and Spawning Habitat	Adult Chinook Salmon Holding Habitat and Spatial Separation of Spawning Spring-Run Chinook Salmon and Fall-Run Chinook Salmon	Open Fish Barrier Pool to fish passage and allow the pool to be used as a spring Chinook salmon holding. Requires the addition of a fish ladder to the Fish Barrier Dam and modifying the existing ladder with a branch to the Fish Barrier Pool.		Information is needed on feasibility of utilizing existing holding habitat for spring-run Chinook salmon in Fish Barrier Pool (March-June). This information is expected from SP-F10 Task 1E. If habitat exists, need conceptual design and costs. Need to determine a way to get the fish out of the barrier pool once they get in. [Category 1, FTF Meeting on 8/22/2003. Moved to a Category 3, FTF Meeting 1/16/2004- Preferred option for segregation may be barrier weir (EWG-2A).]
EWG-4A (3)	Upstream Fish Passage	Provide Flows for Adult Upstream Migration	Provide pulse flows from the Thermalito Afterbay Outlet or the Thermalito Diversion Dam to the high flow section of the Feather River to facilitate upstream migration of adult sturgeon (February-June) and shad (May-June) to potentially reduce holding time below Shanghai Bench and Sunset Pumps. Under this Resource Action, the same acre-footage of water would be released over the upstream migration time period, but the regime would be altered so that the flow pattern would include pulses that would not have previously existed. The flows needed for this measure could be on the order of 6,000 to 8,000 cfs for 4+ weeks.		Additional information needed regarding the magnitude of the flow pulse desired (i.e. 2X base flow) and the frequency and duration with which the pulse desired (i.e. one week per month, one day per week, etc.). Providing pulse flows at these times could also benefit rearing salmonids, as well as spawning and rearing splittail, by providing inundated floodplain habitat (see EWG-19A). Providing pulse flows may also benefit upstream passage of adult American shad and sturgeon (see EWG-4B). Facilitating Passage over Shanghai Bench using flow would require coordination with Yuba River operations. Pulse flows during this time period may result in redd dewatering or juvenile fish stranding for Chinook salmon and steelhead. Potential cross-resource effect on riparian vegetation and fluvia processes, depending on the magnitude of flow alteration. (Includes concepts previously embedded in EWG-9.) This could be looked into after an evaluation of EWG-5, if a sturgeon-flow relationship is determined. Category 3 - Determined at Fisheries Task Force Meeting (8/22/2003).
EWG-4B (3)	Attraction Flows	Attraction Flows for Adult Upstream Migration, Primarily for Splittail, American Shad, and Sturgeon, and Secondarily for Spring-run Chinook Salmon and Steelhead	Provide high flow pulses in winter-spring (January-June) that will serve as attraction flows primarily for shad (May-June), sturgeon (February-June), and splittail (January-April). Secondarily, pulse flows would serve as attraction flows for spring-run Chinook salmon and steelhead.		Flow could originate from the Thermalito Afterbay Outlet or the Thermalito Diversion Dam. Additional information needed regarding the magnitude of the flow pulse desired (i.e. 2X base flow) and the frequency and duration with which the pulse desired (i.e. one week per month, one day per week, etc.). Providing pulse flows at these times could also benefit rearing salmonids, as well as spawning and rearing splittail, by providing inundated floodplain habitat (see EWG-19A). Providing pulse flows may also benefit upstream passage of adult American shad and sturgeon (see EWG-4A). Releases for attraction flows would require coordination with Yuba River operations. Need additional information on attraction and pulse flows. Potential cross-resource effect on riparian vegetation and fluvial processes, depending on the magnitude of flow alterations. Redds constructed in shallow water during pulse flows may result in dewatering or juvenile fish stranding (Chinook salmon and steelhead). Category 3 -Determined at Fisheries Task Force Meeting (8/22/2003).
Aquatic Resources - Reduce Predation on Salmonids and other Native Aquatic Species					
EWG-35A (3)	Fish Predation	Predation on Juvenile Fish Species	Reduce water temperatures at the Thermalito Afterbay Outlet to reduce the feeding rates of juvenile salmonid predators on rearing and emigrating juvenile salmonids in the Feather River.		Data needed on impact of cooler flows to Feather River biotic resources. (Cooler water may result in slower growth for salmonids.) Unclear to what extent colder releases from the Thermalito Afterbay could lower Feather River water temperatures. Extent of effect of predation on juvenile salmonids is unquantified. Related to EWG-37 & EWG-83. The use of water temperature as a mechanism to exclude predators from the LFC could also be discussed. Need to find out what time of year would this take place and by how much would water temperatures be lowered. Category 3 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-35B (3)	Fish Predation	Predation on Juvenile Fish Species	Reduce water temperatures in particular areas of the Feather River to exclude predators of rearing and emigrating juvenile salmonids.		The specific areas for this Resource Action could be in portions of the LFC and/or HFC depending on distribution of target species and target temperature thresholds. Data needed on impact of cooler flows to Feather River biotic resources. (Cooler water may result in slower growth for salmonids.) Unclear to what extent colder releases from the Thermalito Afterbay could lower Feather River water temperatures. Extent of effect of predation on juvenile salmonids is unquantified. Related to EWG-37 and EWG-83. Need to find out what time of year would this take place and by how much would water temperatures be lowered. Category 3 -Determined at Fisheries Task Force Meeting (7/16/2003).
Aquatic Resources - Minimize Hatchery Impacts on Anadromous Salmonids and Resident Fish					
EWG-40 (3)	Fish Spawning Habitat Enhancement	Over-Escapement Related to Hatchery Production	Decrease hatchery production of salmon so that there is less crowding and competition for limited spawning habitat in the low flow section of the Feather River.		Could be combined with Hatchery Task Force PM&Es. Similar to EWG-2A. Requires coordination with DFG. This Resource Action may not be compatible with EWG-44, 45, 47, or 50. Category 3 -Determined at Fisheries Task Force Meeting (8/20/2003).
Aquatic Resources - Mitigate for Previously Impacted Terrestrial and Riparian Habitat of Plant and Animal Species					

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
EWG-105 (3)	Wetland Development and Habitat Enhancement	Re-Water Ruddy Creek	The Resource Action was originally introduced to the EWG with a goal of mitigating for the dewatering of Ruddy Creek. This measure proposes to re-water Ruddy Creek by utilizing a small diversion from the Forebay, and could also potentially enhance historic wetlands. The EWG initially looked at the measure to potentially providing salmonid spawning and rearing habitat in a tributary of the Feather River, however the measure's primary goal would now be to provide habitat for warmwater species & enhance the OWA by adding additional waters.		This Resource Action was introduced to the RAM table on November 3, 2003 through a RAIF submitted by Butte County and the LFCA, and proposes mitigation for impacts to the Ruddy Creek community by the construction of the Oroville Facilities. This Resource Action was initially evaluated as a part to EWG-98, however, it would now be designed more to enhance historic wetlands, warmwater species habitat, and the OWA. After initial review of proposed action, it was determined that the proposed location was unsuitable for re-development of Rudy Creek. The concerns included: the location for proposed wetland development would likely require mosquito abatement and heavy clearing of the historic channel; the area is currently being developed for residential homes near the headwater source (Forebay seepage valves); and there are other proposed locations which would be more favorable for wetland development. Category 3 - Determined at Fisheries TF Meeting (3/2/2004).
Category 4 - Proposed Resource Actions Eliminated From Further Analysis					
Aquatic Resources					
EWG-3 (4)	Impaired Fish Passage	Adult Sturgeon Upstream Passage	This Resource Action would increase flows during critical upstream passage periods for sturgeon at Steep Riffle. Currently, flows in the low flow reach are maintained at 600 cfs, except during flood events or occasional temporary changes in project operations.		SP-F3.2 Task 3A assessment concluded that green sturgeon could likely ascend steep riffle without complication—therefore, no need is currently identified for this Resource Action. SP-F10 Task 1C determined that under current operating parameters flow related physical passage impediments to adult salmonid upmigration are not apparent and May-June (shad). Category 4 -Determined at Fisheries Task Force Meeting (8/22/2003).
EWG-7 (4)	Impaired Fish Passage	Adult sturgeon fish performance metrics	Assist in field calibration of sturgeon passage information from University California-Davis studies (conducted in lab in 2003).		Not a Resource Action. Assist in field calibration of sturgeon passage information from University California-Davis studies (conducted in lab in 2003)
EWG-8 (4)	Impaired Fish Passage	Adult sturgeon upstream passage	Conduct field-tracking studies to determine timing and movement patterns of sturgeon in Feather River (i.e., field-verify whether sturgeon can migrate past Sunset pumps and Shanghai Bench.		Not a Resource Action. Conduct radio field-tracking studies to determine timing and movement patterns of sturgeon in Feather River (i.e., field-verify whether sturgeon can migrate past Sunset pumps and Shanghai Bench (FR-20)
EWG-10A (4)	Impaired Fish Passage	Upstream Passage of Lake Oroville's Resident Fish	Provide resident fish with access to the upstream tributaries by removing sediment plugs which block access to the upstream tributaries of Lake Oroville to increase the quantity and quality of available salmonid spawning habitat. (Upstream Tributaries)		This Resource Action would likely increase the quantity and quality of available salmonid spawning habitat. Combines similar Resource Actions (EWG-10B) by removing upstream barriers. Related to EWG-96. Evaluation of introducing fish in Lake Oroville to areas that they have not had access to should include consideration of: predation, disease transmission, genetic introgression, and competition for food and habitat. Additional information would be required as to the dynamic of how flows cut through current sediment plugs (laminar/sheet flows or downcutting flows). DWR (Eric See) has indicated that there is a managed trout fishery above the Poe Reach, and allowing upstream passage out of the lake would greatly impact this. In addition, DWR has suggested that the difficult upstream passage from the lake has helped to prevent upstream passage of fish diseases (stocked fish in Lake Oroville). Category 4 -Determined at Fisheries Task Force Meeting (8/20/2003).
EWG-10B (4)	Impaired Fish Passage	Upstream Passage of Lake Oroville's Resident Fish	Provide resident fish with access to the upstream tributaries by removing boulders and manmade barriers. This Resource Action could include the removal of Big Bend Dam or the construction/repair of fish passage facilities at this site to open up the Poe Reach.		Combines similar Resource Actions (EWG-10A) by removing upstream barriers. This Resource Action would also likely increase the quantity and quality of available salmonid spawning habitat. DWR (Eric See) has indicated that there is a managed trout fishery above the Poe Reach, and allowing upstream passage out of the lake would greatly impact this (predators). In addition, DWR has suggested that the difficult upstream passage from the lake has helped to prevent upstream passage of fish diseases (stocked fish in Lake Oroville). Evaluation of introducing fish in Lake Oroville to areas that they have not had access to would also have to include consideration of: genetic introgression and competition for food and habitat. This Resource Action may result in impacts to the recreational fishery in Lake Oroville if fish which were previously unable to pass into the upstream tributaries are now capable of migrating into the tributaries. Category 4 -Determined at Fisheries Task Force Meeting (9/3/2003).
EWG-11 (4)	Interaction of Stocked Fish with ESA-listed Fish Species	Passage of Stocked Rainbow Trout from the Thermalito Complex Into Feather River	Prevent downstream passage of rainbow trout from the Thermalito Complex into the Feather River. Currently rainbow trout are stocked in the Thermalito Forebay for a "put and take" fishery. This Resource Action will address concerns about hatchery-origin trout interacting with natural steelhead in the Feather River. Opportunities to prevent downstream passage of rainbow trout include changing the species that are stocked in the Forebay (i.e. stock steelhead, Chinook salmon, Coho salmon, or brown trout instead of rainbow trout) or eliminating stocking in the Forebay.		Obtain information from snorkel surveys to assess impact level. Need to define specific concerns related to genetic introgression and disease transmission. Ceratomyxa may eliminate most planted trout within several weeks. Current level of trout passage into the Feather River from Thermalito Afterbay Outlet or the Thermalito Diversion Dam is undetermined. One way to determine the number of trout passing through the Thermalito Afterbay Outlet to the Feather River is to install a fish counting and identification device at the Thermalito Afterbay Outlet and Diversion Dam. DWR (Eric See) indicated that this was not a problem, and even if there was, very little or maybe nothing could be done. Category 4 -Determined at Fisheries Task Force Meeting (8/20/2003).
EWG-12 (4)	Impaired Fish Passage	Passage of Stocked Rainbow Trout Into Feather River	Install a fish-counting and identification device at the Thermalito Afterbay Outlet and Diversion Dam.		Not a Resource Action.

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
EWG-30 (4)	Protect Nesting Habitat	Bass Nest Survival	Regulate reservoir drawdowns to less than 9 ft/month to reduce bass nest dewatering and subsequent mortality.		This Resource Action would be implemented from March to June. Study Plan, SP-F3.1 Task 2C, indicates that under current operating parameters, bass nest survival exceeds the 20% criteria of DFG in all months from March-June. (If implemented, guidance would be to limit potential drawdown rates to less than 9 ft/month.). DWR (Eric See) - Current studies have indicated that the lake does not fluctuate more than 9ft/month (Category 4 - 8/22/2003).
EWG-32 (4)	Salmonid Nutrient Enhancement	Nutrient Supplementation For Salmonids	This Resource Action would supplement tributaries to Lake Oroville with salmon carcasses or carcass analogs (chemicals) to increase levels of marine-derived nutrients (assuming nutrient supplementation is desired).		Nutrient sampling as part of SP-W1 will provide baseline condition data. Related to removing fish passage barriers in upstream tributaries to enhance nutrient cycling. Could have cross-resource impact with riparian vegetation at supplementation sites from increased nutrient loading. If carcasses used, timing of supplementation likely late-winter/early spring, but depends on carcass availability. Potential issues would include water quality, fish disease, public health concerns, and potential effects on recreation. DFG (Dr. Cox) and DWR (Eric See) have not come to a conclusion about what this Resource Action is trying to solve (birds, bears, or fish problem?). Category 4 -Determined at Fisheries Task Force Meeting (8/20/2003).
EWG-33 (4)	Salmonid Nutrient Enhancement	Nutrient Supplementation For Salmonids	Provide resident salmonids with access to the upstream tributaries by removing sediment plugs, boulders, and manmade barriers. This Resource Action could include the removal of Big Bend Dam or the construction/repair of fish passage facilities at this site to open up the Poe Reach.		Fish would migrate up from Lake Oroville, die, and as they decay, nutrients would be introduced to the waters in the upstream tributaries. This Resource Action is essentially the same as EWG-10. Removal of Big Bend Dam would need to be assessed for geomorphic effects. DWR (Eric See) has indicated that there is a managed trout fishery above the Poe Reach, and allowing upstream passage out of the lake would greatly impact this (predators). In addition, DWR has suggested that the difficult upstream passage from the lake has helped to prevent upstream passage of fish diseases (stocked fish in Lake Oroville). Category 4 -Determined at Fisheries Task Force Meeting (8/20/2003).
EWG-38 (4)	Water Temperature	Increase Habitat Quantity for Coldwater Species	Manage withdraws from Lake Oroville to minimize reduction of coldwater pool.		Ongoing studies indicate that under current operating parameters, sufficient coldwater is available to support salmonids stocking goals. Related to EWG-50. Will get info on coldwater pool from modeling efforts. Possible conflict with EWG-87. Category 4 -Determined at Fisheries Task Force Meeting (12/11/2003).
EWG-39 (4)	Fish Disease Concerns	Feather River Fish Hatchery Practices	Evaluate all proposed management actions for relevance to fish disease concerns.		This Resource Action was combined with EWG-43, 46, & 49 and moved back to Aquatic Resources Section. DWR and DFG indicated that there is an existing Fisheries Management Plan, and fish disease is/will continue to be part of the plan. Category 4 -Determined at Fisheries Task Force Meeting (8/20/2003).
Terrestrial Resources - Protect and Enhance Populations of TES Plant and Animal Species					
EWG-52 (4)	Terrestrial Species Protection	Minimize Recreational Impacts on Terrestrial Species	Modify recreational use patterns in Feather River to minimize impacts to important terrestrial species		This Resource Action was included into EWG-59 (and modified accordingly). Exact measures dependent on analysis in upcoming report. Need to identify which species would be impacted (vernal pool species, VELB, plus additional species of concern). Changes might include: closures, modification of boat speeds, angling access, or ORV restrictions. A map defining the area would be helpful to better flush out suggested changes. Need to determine which agency would be responsible for the various reaches (DWR, F&G, and National Parks). DWR and DFG have indicated that this is not a major problem that needs to be dealt with (it is currently being handled). Category 4 -Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-53 (4)	Wildlife Habitat Enhancement	Increase Vegetative Cover	Provide improved vegetation cover and improved recreational screening within important migration corridors.		There would be a need to identify which areas and species would be used. To be considered an action within combination EWG-55 & EWG-60. DWR has not identified any areas where to implement this Resource Action, as well as the notion that these may be private lands issues. Category 4 -Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-54 (4)	Terrestrial Species Protection	Minimize Terrestrial Impacts from Recreational Use	Modify recreational use patterns in Thermalito Complex to minimize impacts to important terrestrial species (exact measures dependent on analysis in upcoming report)		This Resource Action was included into EWG-59 (and modified accordingly). State Parks is responsible for diversion pool and Forebay; F&G is responsible for Afterbay and OWA. See comments on EWG-52. DWR (Dave Bogener) has indicated that this may not be a relicensing issue (not a Resource Action), but an enforcement issue. To be coordinated with Woody Elliott. Category 4 -Determined at Terrestrial Task Force Meeting (7/15/2003).
EWG-55 (4)	Wildlife Habitat Enhancement	Increase Vegetative Cover	Provide improved vegetation cover and improved screening within important corridors.		DWR has indicated that the vegetative cover portion of this would be included in the purple loose strife management plan (EWG-73). DWR has not identified any areas where to implement this Resource Action, as well as the notion that these may be private lands issues. Category 4 -Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-60 (4)	Wildlife Habitat Enhancement	Increase Vegetative Cover	Provide improved vegetation cover and screening within important corridors or nursery areas within the OWA.		DWR (Dave Bogener) and the Terrestrial Task Force have indicated that this is not a necessary Resource Action. Category 4 - Determined at Terrestrial Task Force Meeting (8/7/2003).
EWG-63 (4)	Terrestrial Habitat Enhancement	Reduction of Nuisance or Non-Native Wildlife	Retrofit or modify existing Lake Oroville recreational facilities to remove potential food sources, nesting sites, and rodent refuge areas for nuisance or pest species. This could also include implementing measures to reduce populations of nuisance non-native wildlife in the Lake Oroville areas (this is to include EWG-64).		This Resource Action incorporates former EWG-64. Concepts include: remove nest sites & food sources. There may be some native species impacts (non-nuisance) through implementation of this action. SP-T8: Only 2 nuisance species were identified (turkeys and bullfrog), but no reasonable management actions are available. Originally Category 2 -Terrestrial Meeting (8/7/2003). Category 4 - 9/26/2003 Terrestrial Meeting (Based on SP-T8). Will be moved to end of RAM Table accordingly.

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
EWG-71 (4)	Non-Native Plant Control	Proliferation of Non-Native Plants	Develop flow regime to control establishment of noxious species below the Thermalito Afterbay Outlet.		This resource action will not be further evaluated because flow control measures would not control non-native plant species in the high-flow area (DWR). Other methods would be employed to control non-native plant species. This could include weed control and restoration similar to those mentioned in EWG-70 (but not flow modifications). Related to EWG-61 and EWG-66.
EWG-72 (4)	Non-Native Plant Control	Proliferation of Non-Native Plants	Develop construction and recreational management protocols to control the spread of noxious species.		Periodic high flows in the high flow channel are helping to cause the spread of noxious weeds. There does not appear to anything feasible which can be done to control the spread of noxious weeds in the high flow channel (DWR). A Resource Action has been suggested to arrest the spread of noxious weeds in the Oroville Wildlife Area (EWG-75).
EWG-77 (4)	Riparian Habitat Enhancement	Habitat Enhancement for Threatened & Endangered Species	Enhance or add riparian habitat for threatened and endangered species in the low flow section of the Feather River.		Fluvial 12 to be used to assess future bank erosion and channel migration associated with different flow regimes. At this time, this Resource Action is not specific to locations within the low flow section of the Feather River or species that would be involved in riparian enhancement (may require continued maintenance due to periodic high-flow events). The addition of riparian habitat may require land acquisition. DWR/USFWS has not identified any TES species. Category 4 -Determined at Terrestrial Task Force Meeting (8/7/2003).
Fluvial Processes - Minimize Project Impacts on Erosion and Sedimentation					
EWG-95 (4)	Impaired Fish Passage	Erosion	Stabilize target stream and reservoir banks to prevent mass wasting. The appropriate bank stabilization method is unknown at this time.		The Resource Action would be designed to minimize landslide and slope failures. Category 4 -Determined at Geomorph Task Force Meeting (10/15/2003).
EWG-96 (4)	Impaired Fish Passage	Erosion	Stabilize hillslope near Black Canyon (a.k.a. Dark Canyon) and remove sediment barrier. Related to fish passage Resource Actions associated with sediment		Related to EWG-10. Category 4 -Determined at Geomorph Task Force Meeting (10/15/2003). Fish passage not a problem related to slope failures.
Category 5 - Proposed Resource Actions Eliminated From Further Analysis					
Aquatic Resources					
EWG-2B (5)	Fish Holding and Spawning Habitat	Adult Chinook Salmon Holding Habitat and Spatial Separation of Spring-Run Chinook Salmon and Fall-Run Chinook Salmon	Install a size exclusion device such as a lattice grating near Bedrock Park from July 1st to November 15th in order to provide spatial separation of holding and spawning habitat for spring-run and fall-run Chinook salmon. The latticed grate would be designed to block movement of adult salmonids but not juveniles.		This Resource Action was incorporated in to EWG-2A Category 5 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-6 (5)	Impaired Fish Passage	Impaired Fish Passage	Re-condition the existing benches along the lower Feather River reach to improve fisheries habitat.		This Resource Action is to be considered for removal, as it is the same as EWG-19A.
EWG-9 (5)	Impaired Fish Passage	Provide Increase Flows for Fish Passage Past Barriers	Provide increase flows to allow fish passage over barriers in lower Feather River.		These additional flows would help to provide passage beyond Sunset Pumps and Shanghai Bench. [Flows in the Yuba River also effect passage at Sunset Pumps.] Passage would be most beneficial for sturgeon, shad and Chinook (under low flow/dry year conditions). This Resource Action differs from EWG-4 in that EWG-9 provides flows to allow for passage, while EWG-4 provides attraction flows encourage migration. Also related to EWG-5. [This Resource Action has been incorporated in to EWG4A.]
EWG-14 (5)	Fish Holding Habitat	Holding Habitat for Adult Spring-Run Chinook Salmon	Create deep pools in low-flow reach of Feather River to provide holding habitat for spring-run Chinook salmon. Deep pools would be created in reaches where water temperatures are expected to be cool enough to provide summer habitat for spring-run Chinook salmon.		SP-F10 Task 1E indicates that potential holding pools are of adequate depth. Resource Action may impact water quality. Ongoing studies to determine when and where spring-run Chinook over-summer in the low flow channel. Fluvial 12 model would be useful for site selection and analysis of stability of pools. This Resource Action is being addressed under the modified version of EWG-93A. Category 5-Determined at Fisheries Task Force Meeting (8/2/2003).
EWG-17 (5)	Fish Rearing Habitat Enhancement	Rearing Habitat for Juvenile Fish Species	Enhance riparian vegetation (including trees) along banks for shading and increased habitat complexity. This could include the use of cottonwoods or alders.		This Resource Action is essentially the same as EWG-51. One location for vegetation enhancement could be 'trailer park riffle' along east side, although drawback is that high-water events may require continued maintenance/improvement of this area. Need to evaluate potential site locations. Additional considerations include that if channels become completely tree-lined, increases in flow may actually cause a decrease in the amount of shallow water habitat available. Use Fluvial 12 model to assess future erosion and channel stability. This Resource Action is being addressed under EWG-16A. Category 5-Determined at Fisheries Task Force Meeting (8/22/2003).
EWG-19B (5)	Fish Spawning Habitat Enhancement	Spawning Habitat for Chinook Salmon and Steelhead	Increase the operational flexibility to allow for decreases in water temperatures downstream of the Thermalito Afterbay Outlet to encourage gravel utilization downstream of Thermalito Afterbay Outlet.		This Resource Action was formerly EWG-19A. See also EWG 36 & EWG-37. Related to EWG-35 & EWG-83. This Resource Action was determined to be a Category 5 (Redundant) because it was not specific enough to differentiate it from EWG-37. The EWG will make sure that the development of EWG-37 maintains all relevant components of EWG-19B. Category 5-Determined at Fisheries Task Force Meeting (9/3/2003).

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
EWG-20 (5)	Fish Spawning and Habitat	Woody Debris Recruitment for Juvenile Fish Rearing Habitat	Add woody debris in the Feather River. Large woody debris would be anchored or inserted into the river at target locations to provide increased habitat complexity.		This Resource Action would provide the related benefit of increasing organic inputs. Additional information on the viability and sustainability of LWD placement in the Feather River flow regime and identification of candidate sites is required. This Resource Action is to be combined with EWG-13A for the entire lower Feather River (LFC and HFC), and EWG-16A/B. Higher complexity LWD generally provides relatively high quality juvenile rearing habitat value, but generally has a shorter longevity than low complexity LWD. Use Fluvial 12 Model to assess geomorphic effects of woody debris placement. Category 5 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-21 (5)	Fish Rearing Habitat Enhancement	Rearing Habitat for Juvenile Salmonids	Increase quantity of shallow water rearing habitat for juvenile salmonids in the high flow section of Feather River by releasing higher flows.		This Resource Action was placed in Category 5 (Fisheries Task Force Meeting (8/22/2003), and the concepts were brought forth in a more encompassing Resource Action, EWG-104 (replacing EWG-21, 22, 23, 24, and EWG-25). The bulk of the required information would be gathered from the modeling runs (anticipated August or September 2003). This Resource Action is also related to EWG-16A/B.
EWG-22 (5)	Fish Rearing Habitat Enhancement	Increase Rearing Habitat for Juvenile Fish Species	Increase connectivity between river channel and floodplain habitats (including low-elevation terraces) in lower Feather River by setting back levees to create seasonal habitats for Chinook salmon, splittail, and steelhead.		This Resource Action was placed in Category 5 (Fisheries Task Force Meeting (8/22/2003), and the concepts were brought forth in a more encompassing Resource Action, EWG-104 (replacing EWG-21, 22, 23, 24, and EWG-25). Ongoing studies associated with SP-G2 will provide additional data. Repositioning levees may affect flood control.
EWG-23 (5)	Fish Rearing Habitat Enhancement	Rearing Habitat for Juvenile Steelhead and Chinook	Provide higher and longer duration flows in winter/spring. Provide flow in the high flow channel to inundate floodplains to provide high quality rearing habitat. This Resource Action would provide higher flows, which would increase quantity		This Resource Action was placed in Category 5 (Fisheries Task Force Meeting (8/22/2003), and the concepts were brought forth in a more encompassing Resource Action, EWG-104 (replacing EWG-21, 22, 23, 24, and EWG-25). Ongoing studies associated with SP-G2 will provide additional data.
EWG-24 (5)	Fish Rearing Habitat Enhancement	Rearing Habitat for Juvenile Chinook and Splittail	Construct or create permanent juvenile fish rearing areas for steelhead and Chinook on existing State owned lands or on newly purchased areas. (for floodplains and sidechannels)		This Resource Action was placed in Category 5 (Fisheries Task Force Meeting (8/22/2003), and the concepts were brought forth in a more encompassing Resource Action, EWG-104 (replacing EWG-21, 22, 23, 24, and EWG-25). More information needed on potential sizes and areas for land acquisition. Also need to study or determine the potential geomorphic effects of channel and floodplain changes.
EWG-25 (5)	Fish Rearing Habitat Enhancement	Rearing Habitat for Juvenile Salmonids and Splittail	Use flow releases from the Thermalito Afterbay Outlet to provide additional floodplain habitats adjacent to the river channel.		This Resource Action was placed in Category 5 (Fisheries Task Force Meeting (8/22/2003), and the concepts were brought forth in a more encompassing Resource Action, EWG-104 (replacing EWG-21, 22, 23, 24, and EWG-25). Unclear how much increased flow is needed to inundate areas.
EWG-28 (5)	Fish Rearing Habitat Enhancement	Bass Nest Survival	This Resource Action will be merged into EWG-26. Manage water levels in the Thermalito Afterbay to provide increased nesting and initial rearing habitat for nesting warmwater species. [Need to determine if proposed operations will		There are operational constraints, however, to Thermalito Afterbay water level fluctuations. Need reservoir level and spawning relationship info. Limits operational flexibility. This Resource Action would be most effective in the spring & fall. Potential cross-resource impacts on waterfowl nesting. Category 2 - Determined at Fisheries Task Force Meeting (8/20/2003).
EWG-34 (5)	Fish Predation	Predation on Juvenile Fish Species	Exclusionary devices (e.g., weirs) placed at the lower part of the low flow section would have a potential benefit of reducing predation on salmonids in the low flow section of the Feather River.		This Resource Action was incorporated into EWG-2A/B, and combined with EWG-41. Extent of effect of predation on juvenile salmonids is unquantified. Sacramento pikeminnow most common native predator. Resource Action could impact navigation/boating. Category 5 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-41 (5)	Fish Hybridization	Maintain the Genetic Integrity of Spring-Run and Fall-Run Chinook Salmon	Use a weir to monitor and restrict access of returning adult Chinook salmon to the low flow section of the Feather River. This Resource Action potentially would reduce genetic introgression between Chinook races and between hatchery/wild		The Resource Action is incorporated into EWG-2A/B. Category 5 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-43 (5)	Fish Disease Concerns	Salmon Survival Related to Feather River Fish Hatchery Practices	Evaluate all proposed management actions for relevance to fish disease concerns.		Combined with EWG-39.
EWG-44 (5)	Fish Disease Concerns	Stocked Fish Diseases	Screen all stocked fish for fish diseases. (action) Evaluate current rainbow trout stocking program in Forebay to look at angler preferences and to prevent the spread of fish diseases *(C. shasta or IHN)*. Potentially cease fish planting in Thermalito Forebay to prevent disease transmission to fishes in the Feather		Related to EWG-11. Indications are that the rainbow trout contract C. shasta and die within a few weeks. This Resource Action/Resource Action may not be compatible with EWG-40. This is a potentially long term project if there is an evaluation component to disease transmission. Initially a Category 3 - Fisheries Task Force Meeting (8/20/2003). Category 5 -Determined at Fisheries Task Force Meeting (12/11/2003).
EWG-46 (5)	Fish Disease Concerns	Feather River Fish Hatchery Practices	Evaluate all proposed management actions for relevance to fish disease concerns.		Combined with EWG-39.
EWG-49 (5)	Fish Disease Concerns	Feather River Fish Hatchery Practices	Evaluate all proposed management actions for relevance to fish disease concerns.		Combined with EWG-39.
EWG-101 (5)	Upstream Fish Passage and Holding and Spawning Habitat	Adult Chinook Salmon Upstream Passage and Spatial Separation of Spring-Run Chinook Salmon and Fall-Run Chinook Salmon	Install a barrier weir at or a size-exclusion device in the low flow section to selectively pass spring-run Chinook salmon, with the goal to spatially separate the spring and fall-run. Studies have indicated that recent genetic studies have determined that fish hybridization (spring and fall-run) is occurring, due to reduced spatial spawning separation. This Resource Action would potentially address concerns about high salmonid spawning densities in the low flow channel and provide an opportunity to segregate the spring and fall runs of Chinook salmon in the Feather River.		To be merged with EWG-2A. This Resource Action was introduced in July 2003. [EWG-34 and EWG-41 were also merged into EWG-2A.] Need to identify suitable location and develop conceptual exclusionary device design. [SP-F10 Task 1E will provide information regarding locations where spring-run Chinook salmon currently hold.] One location proposed by NOAA Fisheries is adjacent (upstream) to the Highway 70 bridge. A new fish ladder would be designed to go from the fish barrier weir directly to the Feather River Fish Hatchery. NOAA Fisheries has also prepared (or is also preparing) a detailed information package for this proposal. This measure may impact boating. [Category 1 -FTF Meeting (12/11/2003). Category 5 -Hatchery Task Force Meeting (1/16/2004).]

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
Terrestrial Resources					
EWG-51 (5)	Riparian Habitat Enhancement	Enhance Riparian Vegetation for Increased Shading and Habitat Complexity	Enhance riparian vegetation and trees along banks for shading and increased habitat complexity.		Similar to EWG-17. This Resource Action is to be combined with EWG-70, therefore making this a Category 5. The first step in this process would be to identify which areas would be addressed, and what plant and tree species would be used. One location for vegetation enhancement could be trailer park riffle along east side, although high-water events may require continued maintenance/improvement. Future erosion of vegetated banks and point bar development could come from Fluvial 12 Model results. Category 5 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-64 (5)	Terrestrial Habitat Enhancement	Reduction of Non-Native Wildlife	Implement measures to reduce populations of nuisance non-native wildlife in the Lake Oroville areas.		Not further defined at this time. It could remain if it deals with the turkey issue. A literature review (turkeys feeding habits) could be implemented to determine problems & potential solutions. This Resource Action was incorporated in to EWG-63.
EWG-76 (5)	Invasive Plant Control	Eliminate Noxious Plants	Develop a variety of control measures, including hydrologic regime, to support and protect native riparian vegetation in the Oroville Wildlife Area.		This Resource Action is to be combined with EWG-75, and this Resource Action will be moved to the back of the RAM Table. Originally a Category 3 -Determined at Terrestrial Task Force Meeting (7/15/2003). Because of this Resource Action being combined with EWG-75, it will be a Category 5 (Terrestrial Task Force 9/26/2003).
EWG-78A (5)	Habitat Protection	Habitat Protection for Special Status Species	Develop maintenance and recreational management actions to avoid impact to special status species within the project area.		This measure is to be merged with EWG-59. Specific measures associated with this Resource Action were not identified at this time (added 5/7/2003). Category 2 - Terrestrial TFM (8/7/2003), Category 5 - Feb '04 EWG Meeting.
EWG-80 (5)	Riparian Habitat Enhancement	Habitat Protection for Special Status Species	Develop maintenance and recreational management actions to avoid impact to special status species within the project area.		This measure is to be merged with EWG-59. Specific measures associated with this Resource Action were not identified at this time (added 5/7/2003). Category 2 - Terrestrial TFM (8/7/2003), Category 5 - Feb '04 EWG Meeting.
EWG-81 (5)	Riparian Habitat Enhancement	Habitat Protection for Nesting Species	Develop disturbance avoidance plans in the vicinity of nest sites during the nesting season of bald eagles and peregrine falcons.		This Resource Action is to be incorporated into EWG-65. Not further defined at this time, but this Resource Action could be combined with similar 'disturbance avoidance plan' Resource Actions (EWG-52, EWG-54, EWG-59, EWG-65, EWG-78A/B , EWG-80, & EWG-82)

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Resource Action ID (Classification Category)	Resource Category	Specific Resource Addressed	Description of Potential Resource Action	Cross-Resource/ Area Effect	Comments and Additional Information
Water Quality					
EWG-83 (5)	Fish Habitat Enhancement	Improve Water Temperature for Salmonids	Operate the Thermalito Complex to provide colder water to Lower Feather River for the benefit of salmonids.		Related to EWG-19B, EWG-35, EWG-37, and EWG-38. Related to EWG-50, and could be combined with EWG-37. This would improve habitat for rearing juvenile and pre-spawning adults. This Resource Action/Resource Action may not be compatible with EWG-87 (temperature for salmonids). Initially a Category 2 - Fisheries Task Force Meeting (9/19/2003). Category 5 - Determined at Fisheries Task Force Meeting (12/11/2003).
Fluvial Processes					
EWG-90 (5)	Fish Spawning Habitat Enhancement	Spawning Gravel Quantity	Rip sections of the low-flow reach to improve spawning gravel composition for Chinook salmon and steelhead. This Resource Action is not specific to location at this time; results from ongoing geomorphology studies (SP-G2) will be used to better define ripping and target locations in the low-flow reach.		This Resource Action was incorporated into EWG-18. Ongoing field analysis associated with SP-G2 will provide additional data. May impact water quality in the Feather River. Category 5 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-91 (5)	Fish Spawning Habitat Enhancement	Spawning Gravel Quantity Enhancement for Adult Salmonids	Supplement the low-flow reach with suitable spawning gravel to increase productivity (i.e., # fish produced per unit area).		This Resource Action was merged with EWG-92, and could be combined with EWG-16A or EWG-16B. This option likely would require continued gravel supplementation over time. Gravel could be obtained from OWA. Ongoing field analysis associated with SP-G2 will provide additional data. Category 5 -Determined at Fisheries Task Force Meeting (7/16/2003).
EWG-94 (5)	Fish Habitat Enhancement	Hydraulic Characteristics of Channel Configuration	Increase floodplain connectivity between OWA and mainstream Feather River with the goal of increasing inflow to selected OWA ponds during higher flows.		This Resource Action is to be incorporated into EWG-16 A/B, 22, or 89. Therefore, since the concept is covered by another Resource Action, it will be designated a Category 4. This Resource Action could potentially be accomplished without setting back levees. Related EWG-95.Category 5 -Determined at Fisheries Task Force Meeting (7/16/2003).

Key for "Resource Classification Category" Column

1. These resource actions have sufficient information (scientific/technical/study plan data) to determine that the action could reasonably be expected to produce beneficial results. A narrative report will be prepared for these Resource Actions which further defines and discusses the detail and feasibility of the Resource Action.

2. These actions are awaiting study plan results before the EWG determines if the Resource Action could produce beneficial results. Narrative reports will be prepared which will include all known relevant information and anticipated dates new data can be expected. Upon completion of the study plans, it may be reevaluated & reclassified as a Category 1,3, 4, or 5.

3. These actions have a high degree of uncertainty regarding the supporting science or the ability of the action to affect the desired outcome. These Resource Actions would likely require development into an adaptive management & monitoring program. These would only be considered for development if other Resource Actions did not meet the desired resource goals.

4. Not Recommended for Further Consideration because the action are not actually Resource Actions but rather a study, the actions are not a realistic concept with regards to relicensing, or the actions address a potential problem that cannot be quantified or may not exist. These actions will be summarized in a shortened Resource Action summary report.

5. Not Recommended for Further Consideration because they are either redundant with other proposed resource actions, the actions which are being conducted under the current license, or the action has been included in another Resource Action. These actions will be summarized in a shortened Resource Action summary report.